

WHAT IS CLAIMED IS:

1. A device for driving a display apparatus having a plurality of display panels, said device comprising:

an interface circuit for receiving display data from  
5 an external processor; and

a control register for storing drive-line-number information on a number of drive lines provided in each of said plurality of display panels, and panel-selection information for selecting one of said plurality of display  
10 panels for said display data to be displayed on,

wherein

said interface circuit receives said drive-line-number information and said panel-selection information from said external processor prior to driving of said selected  
15 display panel, and

said control register stores said drive-line-number information and said panel-selection information prior to the driving of said selected display panel in response to a demand from said external processor.

20

2. A device according to claim 1, further comprising:

a gray-scale voltage generating circuit for generating a plurality of gray scale voltages; and

a gray-scale voltage selector for selecting one from  
25 among said plurality of gray scale voltages in accordance

with said display data, and outputs said selected gray scale voltage to said selected display panel via a corresponding one of data lines common to said plurality of display panels,

wherein said gray-scale voltage selector outputs said  
5 selected gray scale voltage to said selected display panel in accordance with said display data, and outputs a gray scale voltage corresponding to one of black and white data to at least one unselected display panel of said plurality of display panels not selected by said panel-selection  
10 information during a vertical blanking period of said selected display panel.

3. A device according to claim 2, wherein, prior to the driving of said selected display panel, said interface  
15 circuit receives vertical-blanking-period information which is intended for said at least one unselected display panel during said vertical blanking period of said selected display panel, from said external processor, and prior to the driving of said selected display panel, said control  
20 register stores said vertical-blanking-period information in response to a demand from said external processor.

4. A device according to claim 3, wherein said interface circuit receives said vertical-blanking-period  
25 information from said external processor during the driving

of said selected display panel, and said control register replaces said vertical-blanking-period information which is previously stored with said vertical-blanking-period information which is newly received, during the displaying  
5 of said selected display panel in response to a demand from said external processor.

5. A device according to claim 2, wherein said device further comprises a data converter circuit for converting  
10 a data from said external processor into one of said black and white data and outputting said one of said black and white data to said gray-scale voltage selector during said vertical blanking period of said selected display panel.

15 6. A device according to claim 2, wherein said interface circuit receives said panel-selection information from said external processor during the displaying of said selected display panel, and said control register replaces said panel-selection information which is previously stored  
20 with said panel-selection information which is newly received, during the displaying of said selected display panel in response to a demand from said external processor.

7. A device according to claim 2, wherein said  
25 gray-scale voltage generating circuit ceases to operate

during a time interval when none of said plurality of display panels are not scanned by said scan line drive circuit.

8. A device for driving a display apparatus having  
5 a display panel composed of a plurality of display regions,  
said device comprising:

an interface circuit for receiving display data from  
an external processor; and

a control register for storing drive-line-number  
10 information on a number of drive lines provided in each of  
said plurality of display regions, and region-selection  
information for selecting one of said plurality of display  
regions for said display data to be displayed on,

wherein

15 said interface circuit receives said drive-line-  
number information and said region-selection information  
from said external processor for each power turn-on of said  
device, and

said control register stores said drive-line-number  
20 information and said region-selection information in  
response to a demand from said external processor for said  
each power turn-on of said device.

9. A device according to claim 8, further comprising:  
25 a gray-scale voltage generating circuit for generating

a plurality of gray scale voltages; and

a gray-scale voltage selector for selecting one from among said plurality of gray scale voltages in accordance with said display data, and outputs said selected gray scale  
5 voltage to said selected display region via a corresponding one of data lines common to said plurality of display regions,

wherein said gray-scale voltage selector outputs said selected gray scale voltage to said selected display region in accordance with said display data, and outputs a gray scale  
10 voltage relatively lower among said plurality of gray scale voltages to at least one unselected display region of said plurality of display regions not selected by said region-selection information during a vertical blanking period of said selected display region.

15

3

10. A device for driving a display apparatus having a main screen and a sub-screen, said device comprising:

an interface circuit for receiving display data from an external processor;

20 a gray-scale voltage generating circuit for generating a plurality of gray scale voltages;

a gray-scale voltage selector for selecting ones from among said plurality of gray scale voltages in accordance with said display data, and outputs said selected gray scale  
25 voltages to said main screen and sub-screen via data lines

common to said main screen and sub-screen,

wherein,

in a first case in which said main screen is brought  
into a display mode and said sub-screen is brought into a  
5 non-display mode in compliance with an instruction from said  
external processor, said gray-scale voltage selector outputs  
said selected gray scale voltages to said main screen via  
said data lines, and outputs a gray scale voltage relatively  
lower among said plurality of gray scale voltages to said  
10 sub-screen; and

in a second case in which said main screen is brought  
into a non-display mode and said sub-screen is brought into  
a display mode in compliance with an instruction from said  
external processor, said gray-scale voltage selector outputs  
15 said selected gray scale voltages to said sub-screen via said  
data lines, and outputs a gray scale voltage relatively lower  
among said plurality of gray scale voltages to said main  
screen.

20 11. A device according to claim 10, wherein said  
relatively lower gray scale voltage is a gray scale voltage  
corresponding to one of black and white data.

25 12. A device according to claim 10,  
wherein,

in said first case in which said main screen is brought into a display mode and said sub-screen is brought into a non-display mode in compliance with an instruction from said external processor, said gray-scale voltage selector outputs  
5 said selected gray scale voltages to said main screen via said data lines, and outputs a gray scale voltage relatively lower among said plurality of gray scale voltages to said sub-screen during a vertical blanking period of said main screen; and

10 in said second case in which said main screen is brought into a non-display mode and said sub-screen is brought into a display mode in compliance with an instruction from said external processor, said gray-scale voltage selector outputs said selected gray scale voltages to said sub-screen via said  
15 data lines, and outputs a gray scale voltage relatively lower among said plurality of gray scale voltages to said main screen during a vertical blanking period of said sub-screen.

13. A device according to claim 12, further comprising  
20 a first scan line drive circuit for scanning said main screen, a second scan line drive circuit for scanning said sub-screen, and a timing generating circuit for generating timing signals for scanning said main screen and sub-screen and for  
outputting said timing signals to said first and second scan  
25 line drive circuits,

wherein,

in said first case in which said main screen is brought into a display mode and said sub-screen is brought into a non-display mode in compliance with an instruction from said external processor, said second scan line drive circuit scans said sub-screen in synchronism with said timing signals during said vertical blanking period of said main screen, and

in said second case in which said main screen is brought into a non-display mode and said sub-screen is brought into a display mode in compliance with an instruction from said external processor, said first scan line drive circuit scans said main screen in synchronism with said timing signals during said vertical blanking period of said sub-screen.

15

14. A device according to claim 12, further comprising a first scan line drive circuit for scanning said main screen, a second scan line drive circuit for scanning said sub-screen, and a timing generating circuit for generating timing signals for scanning said main screen and sub-screen and for outputting said timing signals to said first and second scan line drive circuits,

wherein,

in said first case in which said main screen is brought into a display mode and said sub-screen is brought into a

25



non-display mode in compliance with an instruction from said external processor, a frequency at which said first scan line drive circuit scans one picture on said main screen is higher than a frequency at which said second scan line drive circuit  
5 scans one picture on said sub-screen; and

in said second case in which said main screen is brought into a non-display mode and said sub-screen is brought into a display mode in compliance with an instruction from said external processor, a frequency at which said first scan line  
10 drive circuit scans one picture on said main screen is lower than a frequency at which said second scan line drive circuit scans one picture on said sub-screen.

15 15. A device according to claim 14,  
wherein,

in said first case in which said main screen is brought into a display mode and said sub-screen is brought into a non-display mode in compliance with an instruction from said external processor, said second scan line drive circuit scans  
20 one or two lines in said sub-screen each time each time said first scan line drive circuit scans one picture in said main screen; and

in said second case in which said main screen is brought into a non-display mode and said sub-screen is brought into  
25 a display mode in compliance with an instruction from said

external processor, said first scan line drive circuit scans one or two lines in said sub-screen each time each time said second scan line drive circuit scans one picture in said sub-screen.